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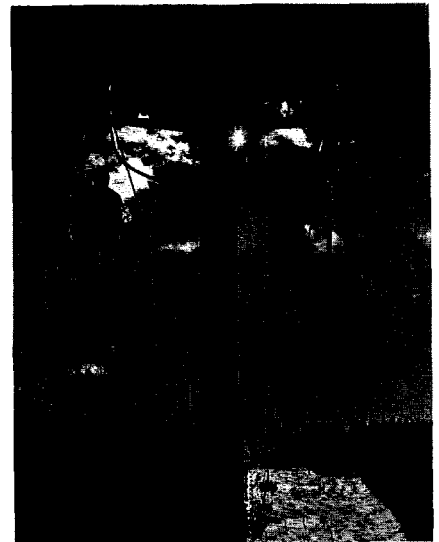
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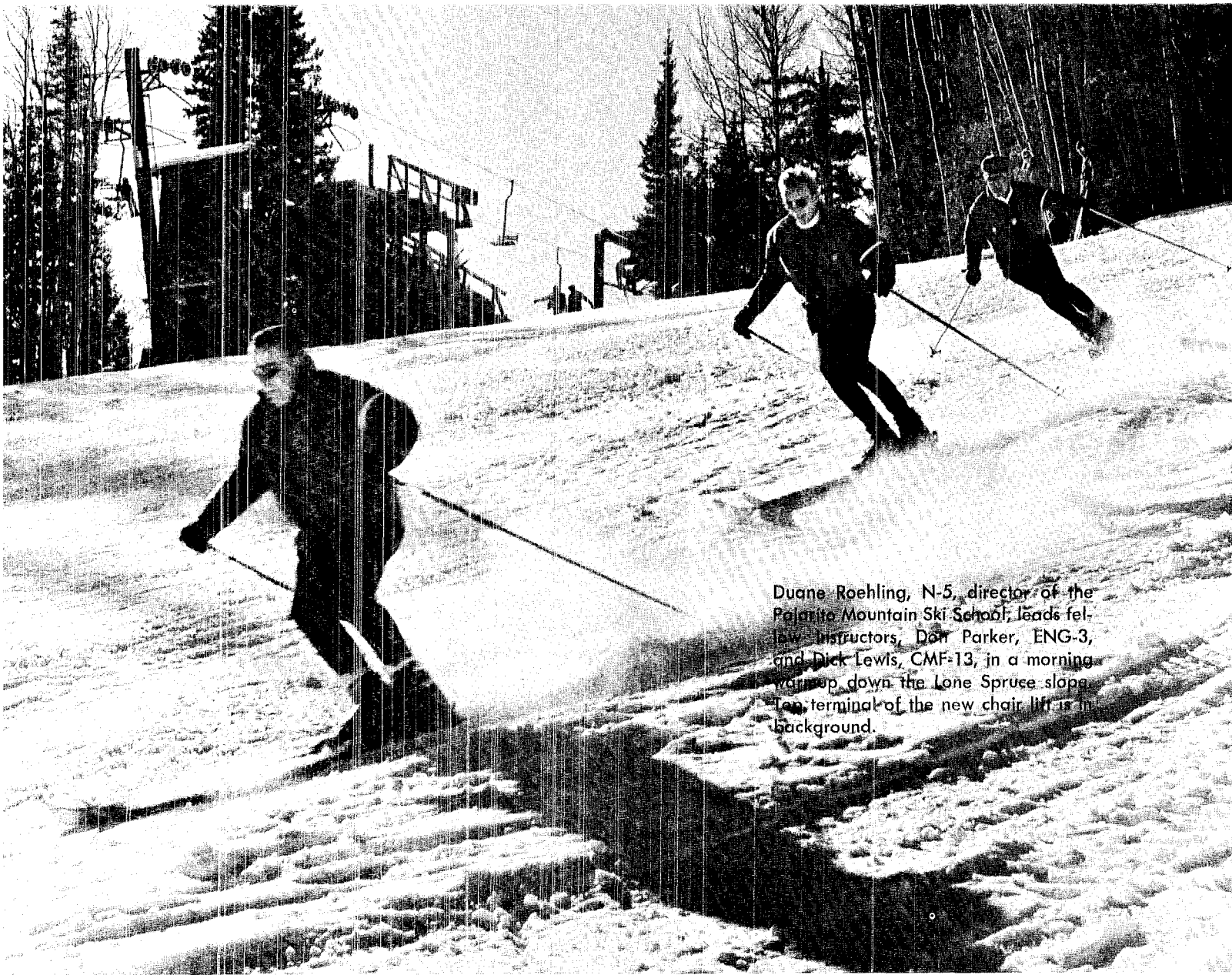
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COVER:

*Los Alamos skiers now travel in
speedy comfort uphill on a new
chair lift. This and other photo-
graphs that accompany the story,
"What's New on Pajarito Moun-
tain," were taken by PUB-1 Group
Leader Bill Regan.*



Duane Roehling, N-5, director of the Pajarito Mountain Ski School, leads fellow instructors, Don Parker, ENG-3, and Dick Lewis, CMF-13, in a morning warm-up down the Lone Spruce slope. Top terminal of the new chair lift is in background.

What's New on Pajarito Mountain?

Not long after manufacturers reveal their new car models, women start buying the new winter fashions, mother nature covers the ground with new snow, and skiers jubilantly premiere what's new on Pajarito Mountain.

After another spring-summer-fall of hard work, Los Alamos Ski Club members, who like to stay close to skiing even during the off-months,

have added the biggest attraction to Pajarito Mountain since installation of the T-bar.

This year's big drawing card is the ski area's first chair lift, which is expected to calm the anxieties of those who hate to wait in lift-lines to the tune of 1,200 skiers per hour.

Two skiers, plus their equipment, can be seated in each of the lift-

continued on page 4



Top, skiers head for the T-bar and lessons after lunch. Above, Ski Instructor Harold Hall demonstrates a maneuver definitely not for beginners. Right, a telephoto lens compresses the chair lift and upper Lone Spruce slope into a winter pattern of black and white.







Above, lunch with a view is enjoyed by Leslie Mann, daughter of Joseph B. Mann, CMF-4, and Brian Gregg, son of Charles T. Gregg, H-4. Picnic tables are rented by the Ski Club from Los Alamos County. Left, this snowpacking machine, making its way up the jeep road, is among the improvements at the Pajarito Mountain ski area this year. Right, Ski School students line up for lessons.

chairs for the 3,000-foot scenic ride up the face of the mountain. Vertically, it's a 900-foot rise between lower and upper terminals.

The terminals and lift-towers are situated on a much improved "Lone Spruce" ski run. In preparation for the new chair lift, the run was extended an additional 1,500 feet and widened to 150 feet. Timber was cleared to establish trails linking the upper and lower terminals with other ski runs, including a new one called "Bonanza."

Bonanza, although open to skiing, is only in its infancy. About 40-feet wide and 1,200 feet in length, the run is destined to eventually be-



come the mountain's longest. When completed in subsequent years, the slope will be widened to 150 feet and will extend for a distance of 5,000 feet between upper and lower terminals of the chairlift.

Just below the lower terminal, ground has been leveled to provide parking space for about 200 additional cars, a move necessitated by the growing number of winter sportsmen who now average about 1,000 per day at the weekend ski area. Plans are to enlarge this parking area in the future to provide space for another 100 vehicles.

To keep pace with the improvements made on the mountain, the

Ski Club has purchased its second snow-grooming machine to help shape the slopes into a better skiing surface.

Improving the ski area is a continuous Ski Club program. During evening and weekend sessions, Club members, who now number more than 2,000, do most of the work themselves, although technical projects, such as installing the chairlift are contracted.

This "think snow" group has bigger and better things planned for Parjarito Mountain in the future, including five more ski slopes, a lodge, piping water to the area, and two additional chairlifts. ❄



LASL's Affirmative Action Plan is Working

By Bill Richmond

"... an Equal Opportunity Employer."

These words appear in all recruiting brochures, advertisements and publications prepared by the Los Alamos Scientific Laboratory.

But what do they mean?

They mean LASL not only pledges not to discriminate in its hiring procedures, but, in the words of Robert Hayden, equal employment officer for the Laboratory, "We have an Affirmative Action Plan whereby we actively recruit and train members of minority groups." In many ways LASL is a leader in this field.

The Laboratory's Equal Employment Opportunity (EEO) office was established in Feb., 1968, by the director. It was created to add increased emphasis to the Affirmative Action Plan with the main purpose being to coordinate and provide Personnel department support for the Laboratory's programs such as the Youth Opportunity Campaign (YOC) and Skills Training Employment Program (STEP).

The Affirmative Action Plan is a general outline of various personnel action areas such as hiring, promotions, placement and testing. It establishes goals and specific positive steps to insure equal opportunities for all individuals.

"About 17 per cent of our employees are members of minority groups," Hayden said. "This is the second highest of all AEC contractors under the Albuquerque Operations Office. Only Zia Company has a higher percentage." During the 1969 fiscal year, 24 per cent of all employees hired were members of minority groups. This was an increase of 8 percent from the 16 per cent hired during the previous year.

Obviously the Affirmative Action Plan is working.

There are a number of special Laboratory programs supervised by the EEO office, with the largest being the Youth Opportunity Campaign (YOC). This is a summer employment program for economically disadvantaged youth, regardless of race or ethnic background.

"In 1968, the first year of the pro-



gram, we hired 46 persons in the YOC," Hayden said. "Last year there were about 60 and for 1970 we expect to hire about 100."

The New Mexico State Employment Offices in Espanola and Santa Fe handle the recruiting and initial selection of candidates for this program. LASL supplements the recruiting effort by contacting schools in the area and agencies such as the Eight Northern Pueblos, Community Action Programs and GI Forum.

"We solicit job availability from the various divisions and departments," Hayden said, "and then try to match jobs and people in such areas as clerks, secretaries, electronic technicians and draftsmen."

This summer the divisions will have an opportunity to select who they want—just like the professional football draft. Representatives from each division will draw numbers to determine the order of

selection. Then they will select the candidates they want, trying to pick someone with experience and skills to fit the job.

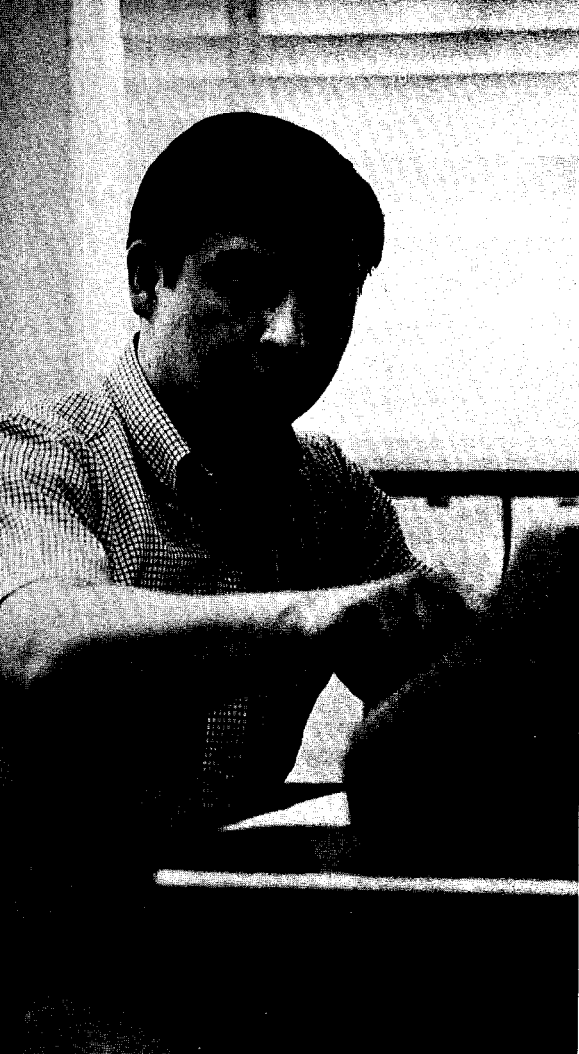
"Over half the people applying have some training," Hayden said, "such as some college, vocational school, part-time job and so on."

Applicants for the YOC program must be between 18 and 21 years of age. In addition, the state employment office certifies that each applicant comes from a family below the poverty index as established by the U.S. Labor Department.

Within the Youth Opportunity Campaign is a program that Hayden calls "the best we have ever done in the affirmative action area." This is the special program for science-oriented students whereby the Laboratory encourages economically disadvantaged high school juniors to seek a career in a science or engineering field.

Equal Employment Officer Robert Hayden confers with Barbara Crabtree, who compiles EEO quarterly reports, and Joe Maestas, who assists Hayden and is in charge of the YOC program.

continued on next page



Al Garcia, T-5, is a graduate of the STEP program. He is a data analyst and is also trained as a programmer.

In 1968 the Laboratory hired two students each from high schools in Espanola, Santa Cruz and Pojoaque for the summer. In 1969 Santa Fe High and St. Michael's High in Santa Fe were included. The students are nominated and selected by the schools.

"These are students who are interested in science," Hayden said, "and we hope to encourage them to pursue it as a career. The percentage of minority groups going into science or engineering is not as high as it is among other groups."

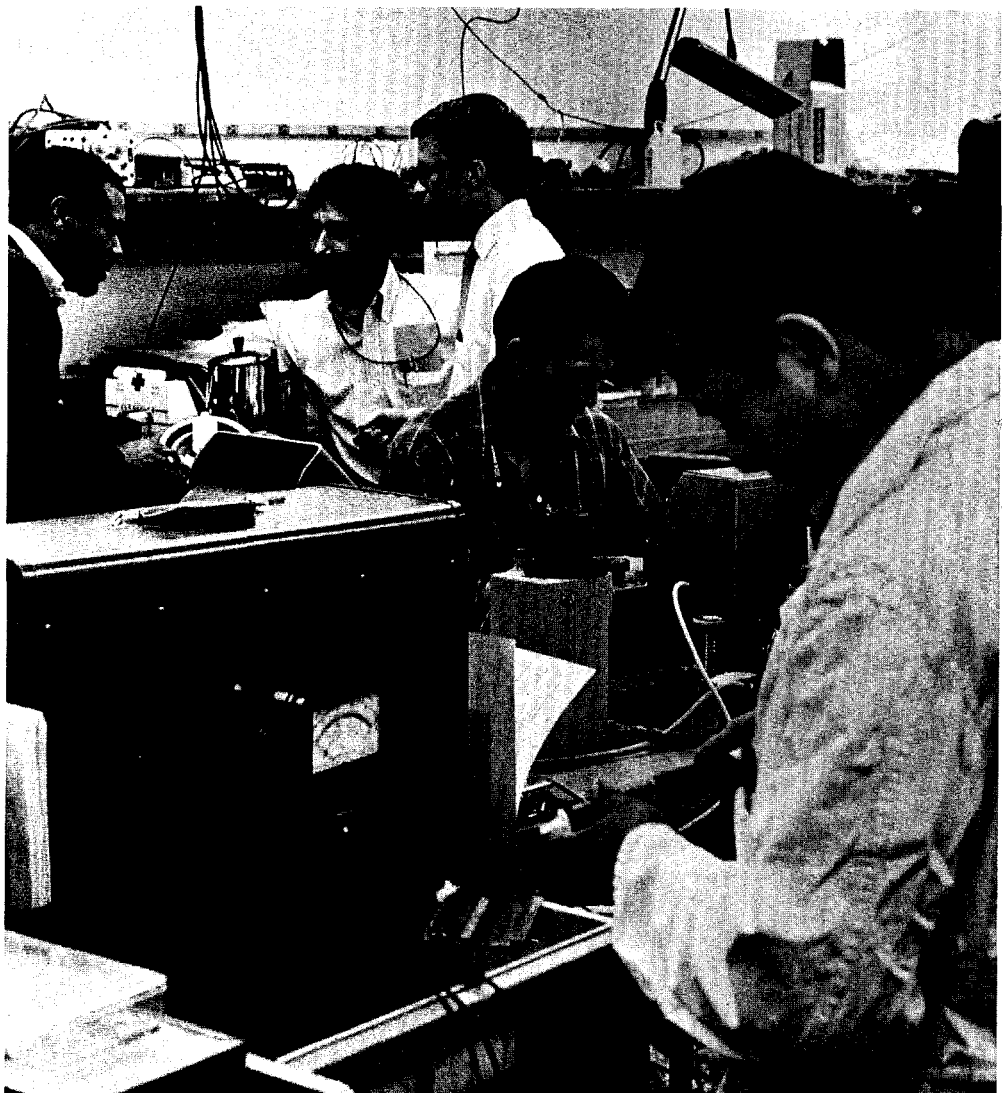
These students normally work as junior technicians in the various technical divisions and all have received praise from their supervisors for their summer's work.

Another aspect of the Laboratory's EEO program is the Skills Training and Employment Program. When the equal employment office was established two years ago, 30 positions were set aside to stim-

ulate hiring of minority and economically disadvantaged applicants by offering on-the-job training for people with basic qualifications but not enough experience to get a job through the normal processes.

These positions are temporary assignments for a period of six months and are charged to overhead and not to the ceiling-point level of the group that employs them. The program has also been used to provide one-year appointments as staff members to minority group employment candidates with technical degrees if permanent positions are not available.

"This is strictly an on-the-job training program," Hayden said. "The group that hires the person provides the training. At the end of the six months if the group cannot absorb the employee—through normal attrition—the EEO office will try to place him in some other group within the Lab. If we can't



Hayden, right background, talks with electronics technicians Al Bowie and Michael Lopez. Bowie, Lopez and Leroy Garcia, in foreground, are all graduates of a six-month STEP program. Emilio Ortiz, second from right, is currently enrolled in the program.



place the person at all here, then we try to place him with private industry somewhere."

Some 80 per cent of these people have been placed at the Laboratory or elsewhere. Of the remaining 20 per cent, some were placed but they quit their jobs to go back to school or else found other jobs.

"Persons in the STEP program have held jobs such as warehousemen, EDP operators, secretaries and clerks, mechanical and electronic technicians, machine operators, and draftsmen."

A one-year appointment to the draftsmen section of STEP was established in 1969. Persons in this program rotated among Shop and Engineering departments and K division for four months each. This was a pilot program, beginning with two men who recently completed training. Present plans are to continue this program on a more formal basis and probably add more candidates.

"This is ideal for training draftsmen to become specialized in the particular work of LASL," Hayden noted.

In order to qualify for the STEP draftsmen program, an applicant must be a member of a minority group, and have at least one year of post-high school drafting training.

How do the students feel about their employment opportunities at LASL?

An Espanola High School junior said he likes "the responsibility . . . and working with professional engineers and scientists who imparted valuable knowledge to us. I worked helping . . . assembling and disassembling electronic experimental equipment and carrying on the interpretation of data compiled. For the first time I was able to see the scientific method applied. I was treated as an adult. That impressed me. My supervisors and coworkers were always helpful and explained what I did not know. I never had better treatment anywhere. I am thinking of possibly being a draftsman because of what I learned this summer. Regardless, this experience will have a bearing on my future."

A 17-year-old Pojoaque junior

Benedict Ladabour, left, and Raymond Chavez are MP-1 draftsmen. Ladabour is a graduate of a six-month STEP program and Chavez graduated from a one-year rotating drafting program.

continued on next page



said, "All the work was very interesting and I liked the way responsibility was gradually increased. At the beginning of the summer I was mostly running errands and taking inventories of stock. Now I am printing circuit boards. It set up a good basis and motive for learning chemistry. The summer job has brought home the message that you need a college education." He also remarked that the job had changed his opinion of the Laboratory. "It took the mystique from the Lab. It is no longer 'that secret installation,' but is now a place with people working together toward a goal."

And, finally, a Santa Cruz student told Hayden: "I liked very much working with the people there, and I also liked very much the learning which I acquired during the course of my job. I did data reducing work which consisted of keypunching, finding errors in computer runs, etc. I wanted to go to college, but I really wasn't sure and now, this summer, I came to realize the importance of an education. It made me realize what excellent jobs you can get with the right training and education. After I graduate, I want to go to college and work my way through if I have to." ✱

John Salazar and Betty Lopez, both C-1, feed input to a computer from a card reader in the Central Computing Facility. Betty is a graduate of a STEP program and Salazar is presently enrolled in a six-month program.

A Refraction of Light



Story and Photo
By Bill Regan

In ancient times and even today among primitive people, rings or halos around the sun or moon have been believed to have all sorts of portents. However, when a halo such as this one of Dec. 19 appears over a physics laboratory like Los Alamos, physicists' eyes turn skyward with an interest based on furthering, by observation, understanding of one of the many optical phenomena produced by the action of light on solid and liquid particles in the earth's atmosphere.

There are several types of halos. The most common is this one which has a radius of approximately 22 degrees. A less common halo of 46 degrees radius is occasionally seen and others, such as the 90 degree halo of Hevelius, have so rarely been seen and measured that the theories of their formation are still somewhat in doubt.

Halos occur when light is refracted by hexagonal ice crystals usually in a thin layer of high cirrus or cirrostratus clouds. These hexagonal crystals act like prisms. Alternate faces of the crystals form

a truncated prism of 60 degrees. When light passes at minimum deviation through the ice prism it is bent by 22 degrees, the randomly oriented crystals then give a light ring of 22 degrees radius around the source (sun). The 46 degree halo involves refraction through an end face and a side face of the ice crystal which make an angle of 90 degrees with each other and lead to a larger angle of minimum deviation.

Bright spots visible in the photograph on both sides of the ring at the same elevation as the sun are called parhelia, or sun dogs. The spots are explained by assuming the crystals have some particular orientation, such as flat plates settling under gravity. Then the refraction occurs in one plane only, having the same altitude as the sun and, instead of a circle, only two bright spots on either side of the sun would be visible. Occasionally, almost a full parhelic circle is observed. For the curious, the sun was occulted with a crude card-board disc to allow photographing the halo without degrading flare. 88

short subjects

Science Youth Days, which last year drew 650 students from 38 schools to tour facilities at the Los Alamos Scientific Laboratory, will not be held this year.

The annual event, usually held in April, will be incorporated into Family Days, June 27-28, when almost all of the Laboratory's technical areas will be open to visitors.

Schools that have participated in Science Youth Days in the past have been invited to attend the Family Days "open house."

Robert Porton, PUB-2 group leader and general chairman of the Family Days Committee, expects attendance for the once-every-five-years event to exceed 25,000.

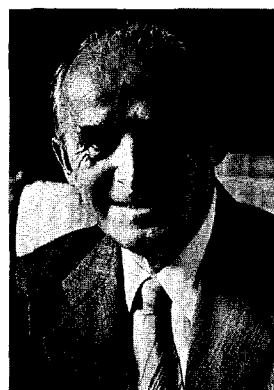


William E. Keller's book, "Helium-3 and Helium-4" has received favorable reviews in the Dec. 19 edition of "Science" and the winter edition of "American Scientist." Keller is with CMF-9.



Florence K. Adams, an employee of GMX-4 for the past 13 years has retired. She and her husband, Robert J., who is employed by the Shop department will continue to reside in Los Alamos.

The first **Samuel Glasstone Award** of \$100 will be presented in June to a student branch of the American Nuclear Society.



The award was announced by the Society's Education Division. It will be given in the spring of each year to the student branch which accomplished the most notable achievements in public service and in the advancement of nuclear engineering.

Funds to establish the award were provided by Glasstone, noted scientist, author, lecturer, and Atomic Energy Commission contractor and consultant for more than 20 years.

Glasstone worked at the Los Alamos Scientific Laboratory for most of these years. He moved to Oak Ridge, Tenn. recently.



Visitations at the Laboratory's Science Museum and Exhibit Hall in 1969 were nearly 15,000 more than in the previous year.

A total of 78,961 people visited the facility in 1969 compared to 64,053 in 1968. By the end of August of last year, more people had toured the Museum and Exhibit Hall than in all of 1968.

The 1969 total includes 1,182 visitors from 87 foreign countries.

new hires

CMB division

James Lehmann, Argonne, Ill., CMB-14

CMF division

James White, Stanford, Calif., CMF-2 (postdoctoral)

Leroy B. Lopez, Chimayo, CMF-9

Engineering department

Jose E. Gutierrez, Santa Fe, ENG-5 (rehire)

GMX division

Trinidad N. Gallegos, Los Alamos, GMX-1

Donald H. Doehling, Denver, Colo., GMX-3

Carlos E. Montoya, Albuquerque, GMX-3

Orlando A. Borrego, Fairview, GMX-3

Alfonso C. Moreno, Anaheim, Calif., GMX-7

H division

Louis F. Brown, Albuquerque, H-1

Victor H. Kollman, Los Alamos, H-7 (rehire)

J division

Lawrence W. Getz, Jr., Las Vegas, Nev., J-5/NTS

Ronald C. Hyer, Livermore, Calif., J-10

Eliseo R. Trujillo, Cordova, J-12

Anne N. Phillips, Los Alamos, J-16 (casual-rehire)

K division

David M. Jones, Pascagoula, Miss., K-4

MP division

Bennie G. Gomez, Santa Fe, MP-1

Steve F. Garcia, Livermore, Calif., MP-3

P division

Richard F. Casten, Copenhagen, Denmark, P-DOR (postdoctoral)

Richard Martinez, Chimayo, P-DO

David R. Millegan, Phoenix, Ariz., P-9

Public Relations department

Thomas A. Segura, Los Alamos, PUB-2 (rehire)

Shop department

Donald R. Cordova, Espanola, SD-1

Supply and Property department

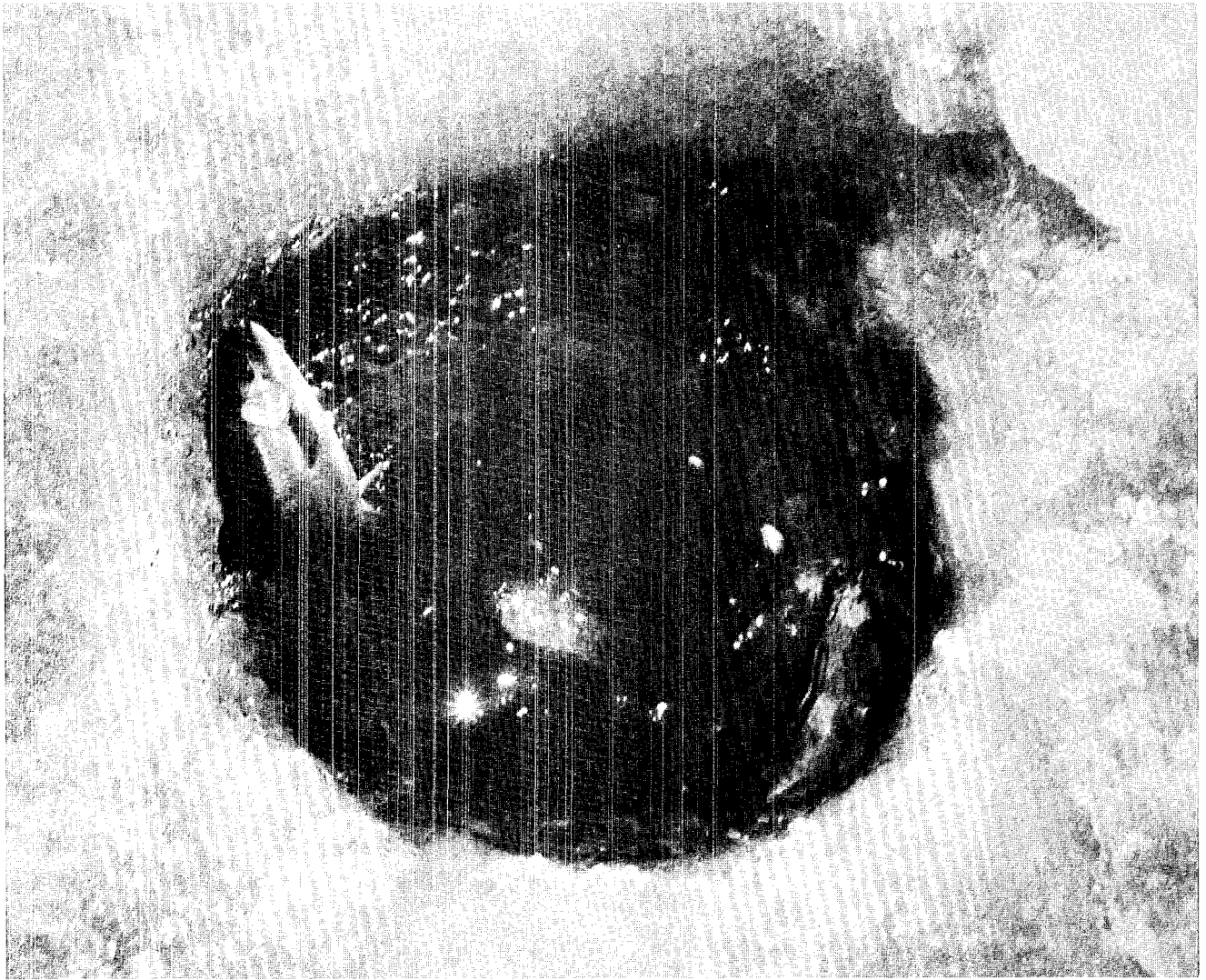
George E. Perrault, Denver, Colo., SP-3

James W. Altman, Los Alamos, SP-4

W division

Joel S. Gilbert, Gainesville, Fla., W-4

John R. Kirkpatrick, Houston, Texas, W-4



Trout that Jump From Hole to Creel?

Take 500 acres of water, freeze top 10 inches, drill many holes, place a hopeful fisherman at each, and wait for results. This is the recipe for ice fishing, a relatively little-known sport of Northern New Mexico.

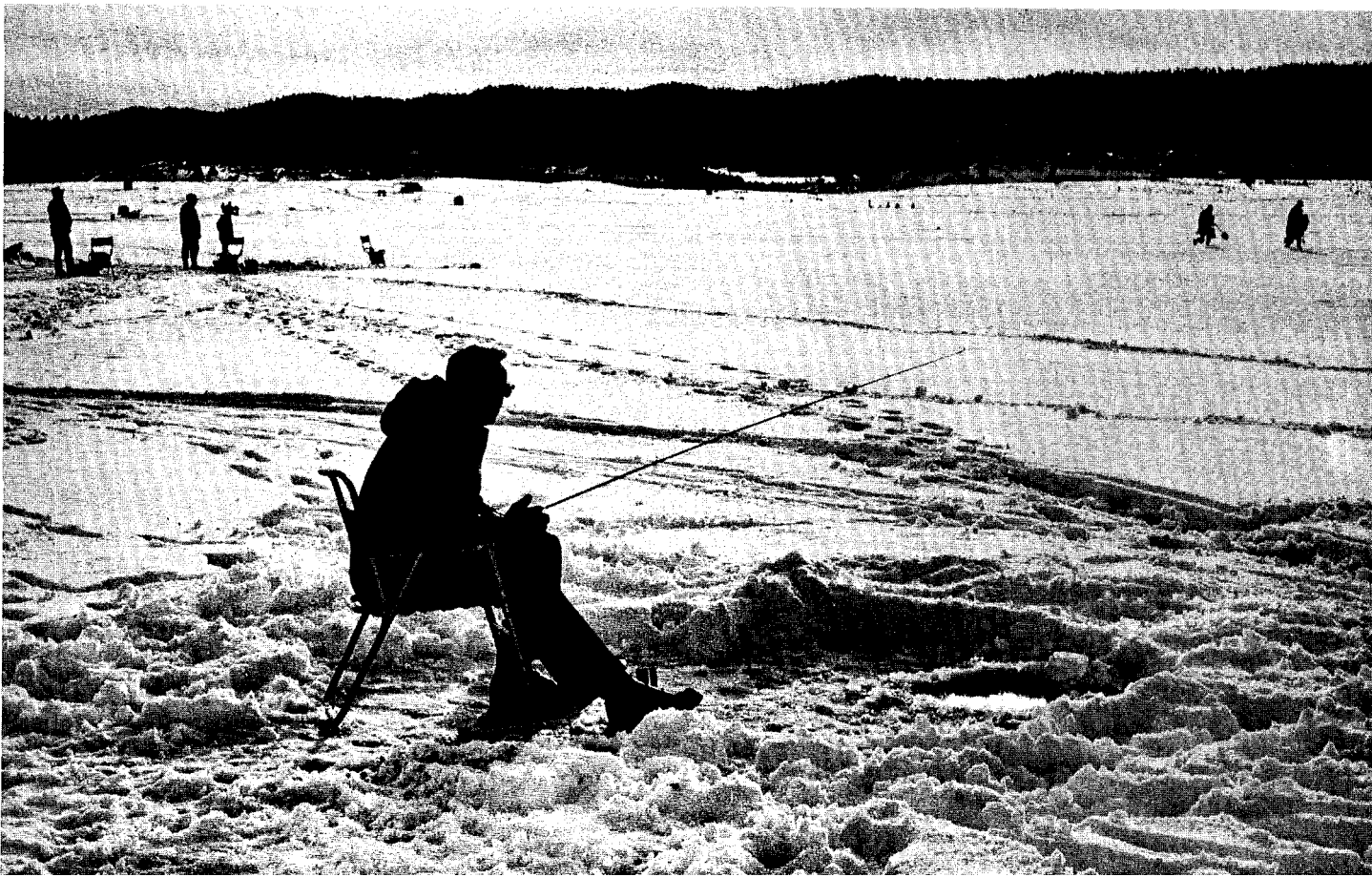
Glowing reports of trout which practically jumped out of the holes into the anglers' creels lured three men from the Los Alamos Scientific Laboratory's C-division to test the recipe at Stone Lake, 125 miles north of Los Alamos on the Jicarilla Apache Reservation. Chet Kazek, C-3 group leader, Fred House, also C-3, and Marv Carpenter, C-2, all being fishermen of long standing and knowledgeable in the

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Comfortable ice fishing requires equipment which transports nicely on sleds filched from children left at home. Fred House, C-3, Marv Carpenter, C-2, and Chet Kazek, C-3, mush ahead to the center of Stone Lake.

Hopeful LASL fisherman Chet Kazek, C-3 group leader, enjoys the sun and scenery at Stone Lake while awaiting angling action.



slight lack of truth in fishing tales, discounted the success stories by the proper factor but did pay attention to warnings of need for protection from the bitter cold, particularly when windy.

Consequently the LASL expedition loaded two pickups with equipment such as hand warmers, blankets, shelters, a charcoal brazier, gallons of hot coffee and other stimulants, and many extra items of warm clothing. They descended on the lake looking somewhat like the first relief expedition to the Donner Party. No wind and a cloudless sky made the weather warning unnecessary. A warm sun and the exercise of drilling 14 holes in the ice contributed to a relaxed attitude and general shedding of heavy clothes.

But the limits of large rainbow trout proved elusive. Fourteen holes carefully fished by four fishermen (including PUB's documentarian) produced five trout. At the day's end, a wag in the group recalled the following quotation from "New Mexico Wildlife" magazine: "Are you suffering from cabin fever? Would you like something different? Have you thought of ice fishing? Ice fishing teems with excitement and gives you the invigorating exercise you may be looking for."

And believe it or not—it's true. Just wait 'til next year. We're all going again and by early December our tale of five fish will have grown into four limits . . . for "the fisherman leaveth early in the morning; he returneth when the day is far spent and the truth is not in him."

Who's for ice fishing next year? Those rainbows practically jumped out of the holes for us.



Fred House triumphantly displays the answer to a fisherman's dream.

Environmental Trapline



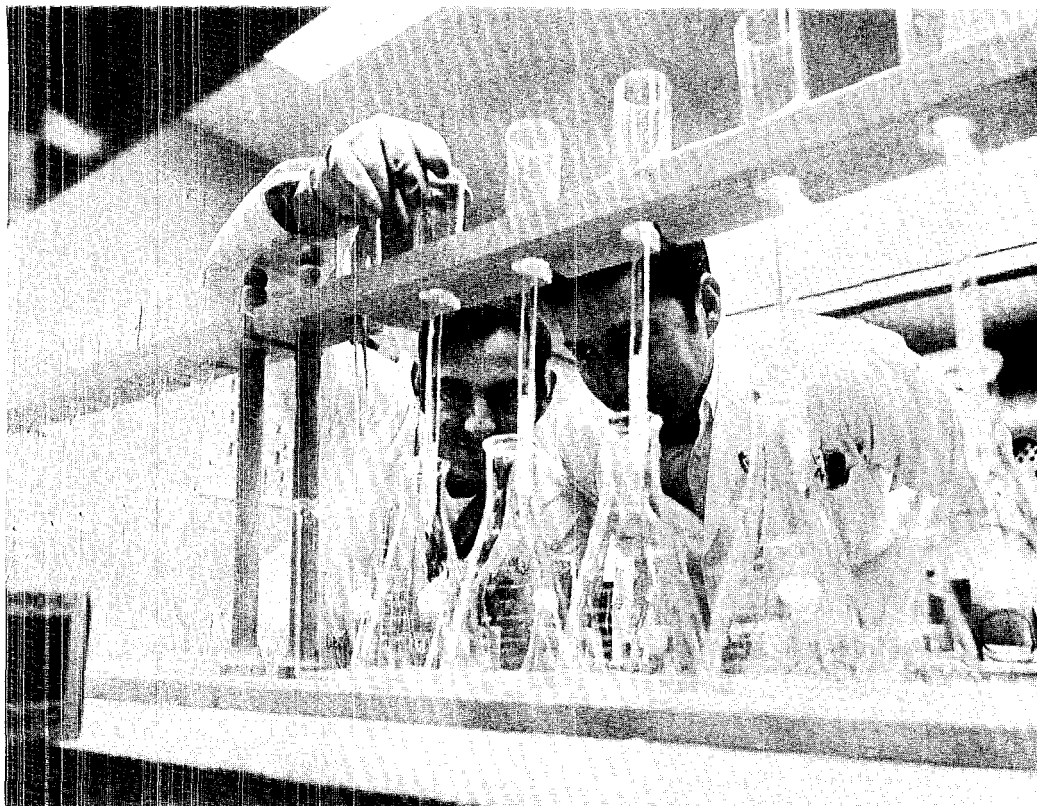
Wastes that evolve from the use of radioactive materials in the various research and development programs at the Los Alamos Scientific Laboratory are monitored continually to ensure that environmental concentrations do not exceed the guidelines specified by the Atomic Energy Commission in its "Standards for Radiation Protection."

Group H-6, which is charged with the responsibility for conducting environmental studies, monitors the atmosphere, soil, and underground and surface water to determine the migration, dispersion and dilution of radioactive materials.

These environmental studies have been conducted for more than 20 years. They are also valuable aids in designing and locating facilities at the Laboratory to prevent the migration of harmful concentrations of radiation and radioactive materials outside of its technical areas.

They are conducted, in general, for the benefit of those areas which would be affected by any contamination originating at the Laboratory. These are the community of Los Alamos and nearby population centers to the north, east and south. According to William Kennedy, H-6 group leader, this is because of the direction of water drainage and wind, which would be the carriers of any contamination. Water drainage, he said, is east from the Jemez Mountains above LASL to the Rio Grande River below and from north to south. Wind direction, he noted, is generally from south to north.

Left, USGS personnel, J. L. Kunkler, Santa Fe, and Tim Kelly, Albuquerque, guide a water-baler into one of several wells in Mortandad Canyon. Watching the sampling process are H-6 Group Leader William Kennedy and Bill Purtymun, also of H-6. At rear, Forest Lyford, USGS, Albuquerque, operates the winch that raises and lowers the baler.



Testing for americium in the H-6 laboratory at TA-50 are Pat Trujillo and Pablo Romera.

Studies are also conducted outside of these areas to insure the neutrality of the Laboratory if contaminants originating elsewhere pollute the environment.

Kennedy's group is divided into two sections. He is located with the Radiation section, the largest of the two, at the TA-50 disposal plant, to which liquid wastes are piped from nearly all of the technical areas and treated.

The radiation section collects air, water and soil samples routinely and analyzes them in its laboratories.

Air particulate samples are collected weekly from 24 stations in the community of Los Alamos, Baranca Mesa and at LASL. Samples are collected from two stations on a workday basis. The regularity with which air samples are collected is because, of the various types of samples, they are the easiest to collect and process and thus would provide the earliest indication of a contaminated environment.

The sampling devices are dosimeters, which measure gamma ra-

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On the roof of the Administration building, Romero replaces a charcoal canister. Below the canister is an air filter and, wired to the railing at right are dosimeters.

diation dose, and a variety of air filters to trap particulates or gases that emit radioactivity.

Stations where these sampling devices are located are on the roofs of school buildings and other structures. Most of them consist of particulate filters connected to vacuum pumps, although, some stations have, in addition, a charcoal canister to trap gases.

The air filters are taken to the H-6 laboratories where they undergo an immediate rough analysis; later they are analyzed more extensively.

Once each month—usually the first or last Monday—gamma dosimeters, strategically located at technical areas, in the community, in canyons, along Pajarito Road, and on State Road 4 which encircles the Laboratory, are collected and read on a routine basis.

In the collection of water and soil samples, H-6 is assisted by the United States Geological Survey (USGS), although analysis is conducted by H-6 in its own laboratories.

Soil samples are collected in Pueblo and Mortandad Canyons—Pueblo because until 1961 wastes from a treatment plant were dumped

there, and Mortandad because treated waste materials from the TA-50 liquid waste disposal plant are currently being dumped there. Ground samples, Kennedy said, are taken on a routine basis above, in, and below where wastes have been dumped. He emphasized that liquid waste materials are treated before being put into the canyon and that the purification process is so complete that “the material is better than AEC standards for drinking water.”

“We monitor all known dump areas because we want to know the ultimate fate of the waste materials. “Traces of radioactive materials that exist in the soil on the canyon floors do not migrate or reconcentrate because atoms of radioactive materials have a tendency to attach themselves to soil particles which stay in place.”

Moisture probes are used periodically to test the soil in Mortandad Canyon to determine the percolation rate of the combination of water from natural runoff and that added by the disposal plant. The moisture probes are also used occasionally near other known waste disposal sites.

Underground and surface water samples are collected and analyzed from a wide area ranging from Taos Junction to Cochiti Dam on the Rio Grande River, points north of Espanola on the Chama River, above the Laboratory in the Jemez Mountains, and below where drainage is into the Rio Grande. The areas north of Los Alamos are tested for background before the water enters the area with which the Laboratory is concerned.

Underground water supplies are sampled through many wells, dug specifically for the environmental studies program. Some of them reach down through the tuff to the conglomerate formation through which ground water flows and eventually empties into the Rio Grande River.

Most of this water runs into the river through springs. There are

more than 20 known springs between Otowi Bridge and Cochiti Dam which are sampled by H-6 and the Geological Survey during raft trips taken every two years.

In all, 124 water samples are collected and tested on a quarterly basis and 54 others annually.

In addition to counting the levels of alpha, beta and gamma activity in the three types of samples collected, H-6 laboratories are equipped to test for specific radioactive elements and to measure the amounts of each if they are present in a sample.

Air samples are collected by Technician Pablo Romero who also does limited work in the laboratories. Rough analysis of these samples is the responsibility of Jack Aeby. Soil and water samples are collected generally by Bill Purtymun and members of the USGS, and radio-chemical analysis is done by Pat Trujillo.

The resulting data, and additional information provided by the USGS, is a valuable aid in locating new facilities, such as waste dumps, to assure that contaminants do not find their way into underground water supplies.

The Meteorology section, headed by *Orin Stopinski, is quartered in the Administration building, and in essence, is a weather station.

Stopinski is assisted by Ralph Jennings and a casual employee, Frank Craven. Climatological studies made by his section are used extensively in engineering design and locating of facilities at the Laboratory. Design is often influenced by wind- and snow-load conditions a structure will have to withstand. Location of some facilities, especially when exhaust stacks are involved, is influenced by wind conditions and the stability of the atmosphere in canyons and on mesas. Such information has bearing on the height and location of exhaust stacks so their effluents are properly diffused into the atmosphere.

The Meteorology section has equipment on the roof of the Ad-

ministration building, on Pajarito Mountain, and several portable instruments are moved from place to place in the canyons. Several sites have their own equipment, some of which is serviced by Stopinski's section, while other equipment is maintained by the groups that use it. Wind instrumentation at the airport is owned by Zia Company, although, data obtained from it is studied and preserved by the Meteorology section. Additional wind equipment is located permanently at TA-33 and Pajarito Site, and temporarily at TA-15. DP-West has wind, temperature, and pressure equipment of its own, although, the

continued on next page



Above, Kelly and Purtymun take soil samples in a creek bed in Mortandad Canyon. Left, Purtymun demonstrates the use of a moisture probe at the injection-well test site near the H-6 facilities at TA-50.

** Stopinski recently terminated employment at LASI.*



Kennedy uses the thermoluminescent dosimeter reader in one of the H-6 laboratories.

Jack Aeby operates radiation counting equipment at TA-50.

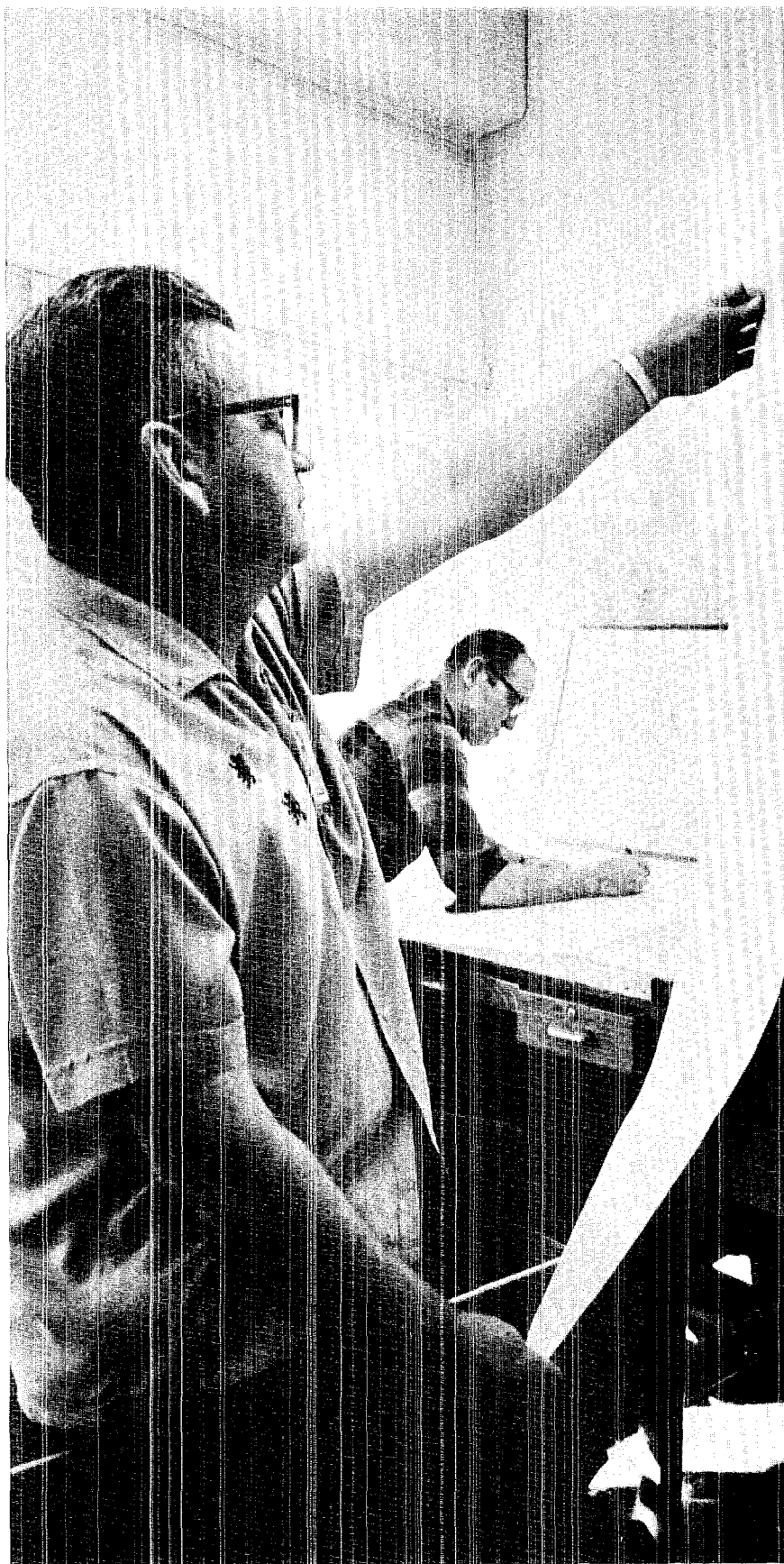
Meteorology section services it and preserves data obtained from it.

"Right now, we're concentrating on Los Alamos Canyon where the Omega West Reactor is located," Stopinski said. "The canyon is instrumented for wind, temperature, and humidity, both on its lip and the floor. We have temperature sensors located at four levels on a tree in the canyon to study the vertical temperature structure of the atmosphere.

"Throughout the world, temperature inversions (increase of temperature with height) are formed near the surface almost nightly. In the Los Alamos area, the cold air drains into the canyons and localizes these inversions there. This temperature change with height is a measure of the stability of the atmosphere; the more stable the atmosphere (temperature increase with height) the less the diffusion process; the more unstable the atmosphere (temperature decrease with height) the more effective the diffusion process. It becomes greatest with the unstable and sometimes violently turbulent conditions of a hot summer afternoon.

"Under inversion conditions, air drains down the canyons to the Rio Grande Valley. We have instrumented canyons to study the small





Orin Stopinsky, Meteorology section leader, scans wire service weather reports. Working with weather maps is Ralph Jennings.

scale flows so we can predict exposure levels from air release of radioactive materials."

In addition, the Meteorology section issues daily forecasts for the Los Alamos area for use by Laboratory members whose work is occasionally influenced by the weather. The section subscribes to two wire services through which it receives hourly weather reports and daily, five and 30-day forecasts covering the entire United States. "We're particularly interested in the western half of the United States, since weather patterns generally move from the west to the east in temperate latitudes. We modify the daily forecasts to fit the local area. This is because a single station forecast is not very reliable, as major changes are associated with large scale patterns."

These daily forecasts are used extensively by Zia Company during the winter so road clearing operations can be anticipated.

Daily weather observations are of value to several agencies. They are summarized each month for use by the United States Weather Bureau in establishing national weather summaries and climatological studies. They are used occasionally by the Atomic Energy Commission for such things as the renegotiation of construction contracts to confirm claims that inclement weather was the cause of not meeting construction deadlines. Information is also made available to the USGS.

In addition to their work in the Los Alamos area, members of both the Radiation and Meteorology sections are involved in test operations in Nevada, the Pacific, and more recently, at the new test site on Amchitka Island in the Aleutians.



the technical side

Presentation at 14th International Summer Meeting of Physicists, Split, Yugoslavia, Sept. 8-20:

"Nuclear Physics Studies with Fast Neutrons: A Survey" by J. C. Hopkins, P-DOR (invited)

Presentation to Working Study Group, Nuclear Fusion Reactor Conference, Culham, England, Sept. 22-26:

"Pulsed Systems" by F. L. Ribe, P-15

Presentation at colloquiums, University of California, Irvine, Nov. 17 and San Diego, Nov. 19:

"Ball Lightning—A Progress Report" by J. L. Tuck, P-DO

Presentation at University of Alabama, Tuscaloosa, Nov. 17:

"Practical Applications of LAMPF" by L. Rosen, MP-DO (invited)

Presentation to Gulf Coast Sections of American Industrial Hygiene Association and Health Physics Society, Houston, Texas, Nov. 18:

"Industrial Hygiene — What Do We Really Mean By It?" by H. F. Schulte, H-5

Presentation at Holy Cross School, Espanola, Nov. 19:

"Elementary Chemistry" by J. Aebly and P.E. Trujillo, Jr., both H-6

Presentation to Central New Mexico Section, American Chemical Society Meeting, Santa Fe, Nov. 21:

"Recent Developments in Anomalous Water Research" by S. W. Rabi-deau, CMF-2 (invited)

Presentation at seminar, Departments of Anatomy and Radiology, University of Utah College of Medicine, Salt Lake City, Nov. 24:

"Biomedical Potential of Negative Pions" by W. H. Langham, H-4 (invited)

Presentation at the National Polytechnic Institute's Center for Investigation and Advanced Studies, Mexico City, Nov. 25 and the National Commission for Nuclear Energy, Mexico City, Nov. 28:

"The Los Alamos Meson Factory" by R. R. Silbar, T-9

Presentation at the National Polytechnic Institute, Mexico City, Nov. 26:

"Soft Pion Production in NN Collisions" by R. R. Silbar, T-9

Presentation at engineering class, University of New Mexico, Albuquerque, Nov. 26:

"Model Studies of Blast Effects" by C. A. Anderson, GMX-3

Presentation at 17th Conference on Remote Systems Technology, San Francisco, Calif., Nov. 30:

"Rover Fuel Examination" by J. W. Barnes and E. A. Bryant, both J-11

Presentations at American Nuclear Society 1969 Winter Meeting, San Francisco, Calif., Nov. 30-Dec. 4:

"The Measurement of ^{236}Pu in Medical Grade ^{238}Pu " by J. Bubernak and G. M. Matlack, both CMB-1

"Numerical Studies of an Initial-Value Neutron Transport Problem" by N. S. DeMuth, Jr., T-DOT and W. Henry, T-1

"Spectral Effects on Calculated Fuel-Cycle Parameters in Large Fast Breeders" by T. J. Hirons, R. D. O'Dell and R. E. Alcouffe, all K-1

"Cross Section for the Delayed-Neutron Yield from the $^{17}\text{O}(n, p)^{17}\text{N}$ Reaction at 14.1 MeV" by H. O. Menlove, R. H. Augustson, and C. N. Henry, all N-6

"Coupled Sampling with the Monte Carlo Method in Time-Dependent Neutron Transport Calculations" by L. L. Carter, T-8

"Time Dependent Neutron Escape from Nuclear Explosions" by S. A. Dupree, Naval Weapons Evaluation Facility, Albuquerque, H. A. Sandmeier, T-DOT, G. E. Hansen, N-2, and W. W. Engle, Oak Ridge

"Calculational Methods for Repetitively Pulsed Reactors" by G. C. Hopkins, K-1

"Anisotropy of Neutron Migration in Lattices of Fuel Rods in Light

Water" by D. R. Harris, T-DOT and J. A. Mitchell, Westinghouse, Bettis Atomic Power Laboratory, Pittsburgh, Pa.

"Kinetic and Power Characteristics of Bare Pulsed Neutron Multipliers" by D. R. Harris, T-DOT and J. I. Sackett, P Div.

"Analysis of Fuel-Element Sections by Two-Dimensional Gamma Scanning" by B. K. Barnes, W. M. Sanders, and D. M. Holm, all K-1

"Neutron Induced Fission Cross Sections for ^{231}Th , ^{233}Th , ^{235}U , ^{237}U , ^{239}U , ^{241}Pu , and ^{243}Pu From 0.5 to 2.0 MeV Using (t, pf) Reactions" by J. D. Cramer, W-8, and H. C. Britt, P-DOR

"Solution of the Reactor Kinetics Equations by Optimum Integrating Factors" by P. A. Secker, Jr., W-1

"Synthesis and Fabrication of Carbide Fuels" by J. A. Leary, M. W. Shupe, R. Honnell, and A. E. Ogard, all CMB-11

"The Thermal Conductivity of Uranium-Plutonium Carbides" by K. W. R. Johnson and J. A. Leary, both CMB-11

"Mechanical Properties of Carbide and Nitride Reactor Fuels" by M. Tokar, A. W. Nutt, and J. A. Leary, all CMB-11

"The Los Alamos Meson Physics Facility and Its Applications" by L. Rosen, MP-DO (invited)

"Design Considerations for Thermionic Space Power System" by E. W. Salmi, N-5 (invited)

"Neutronics of the Phoebus 2 Reactor" by J. L. Sapir, and J. D. Orndoff, both N-2

Presentation at Seminar on Non-destructive Testing, University of Nebraska, Lincoln, Dec. 1:

"The Economical and Technological Considerations of Nondestructive Testing in the Age of Materials Explosion" by G. H. Tenney, Dir. Off., (invited)

Presentation at 17th Conference on Remote Systems Technology, San Francisco, Calif., Dec. 2:

"The LAMPF Hot Cell Complex" by M. T. Wilson, MP-6

Presentation at seminar at the Department of Radiation Biology and

Biophysics, University of Rochester, New York, Dec. 2:

"Repair of Ultraviolet Light-Damaged DNA in *Haemophilus Influenzae*" by G. J. Kantor, H-4 (invited)

Presentation at meeting of the Cincinnati Radiation Society, Cincinnati, Ohio, Dec. 2:

"Biomedical Potential of Negative Pions" by W. H. Langham, H-4 (invited)

Presentations at Defense Atomic Support Agency High Altitude Nuclear Effects Symposium, Albuquerque, Dec. 2-5:

"A Calculation of the Kingfish Fireball" by D. S. Sappenfield, and F. E. Fajen, both J-10

"Radiation From a Recombining Oxygen Plasma" by D. S. Sappenfield, J-10

"Analysis of Kingfish Striation Data" by H. J. Linnerud, EG&G, Inc., Bedford, Mass., and D. S. Sappenfield, J-10

"High Altitude Plasma Injection Experiment" by D. M. Kerr, Jr., and S. R. Goldman, both J-10, C. M. Fowler, GMX-6, J. Marshall, Jr., P-17, and J. C. Ingraham, EG&G, Inc., Bedford, Mass.

"Debris Northern Conjugate Ef-

fects for Spartan Bursts" by M. S. Tierney, J-10

Presentation at Instrumentation and Controls Meeting, Atomic Energy Commission-Space Nuclear Propulsion Office, Cleveland, Ohio, Dec. 3-4:

"Pewee Diagnostic and Controls Instrumentation, Dynamic and Steady-State Air Considerations" by C. R. Tallman, N-4

Presentation at Radiation Effects Meeting, Air Force Weapons Laboratory, Kirtland Air Force Base, Albuquerque, Dec. 3-4:

"The Thermal Response of Organic Explosives to a Pulsed Nuclear Radiation Environment" by E. D. Loughran and L. C. Smith, both GMX-2

Presentation at Bernalillo County Medical Association, Albuquerque, Dec. 4:

"The Production and Uses of Pions" by L. Rosen, MP-DO

Presentations at 25th Annual Southwest Regional Meeting of the American Chemical Society, Tulsa, Okla., Dec. 4-6:

"Sedimentation Properties of Low Molecular Weight, Methylated RNA's as They Exist in Chinese Hamster Cell Fractions" by M. D. Enger,

R. A. Walters, and A. G. Saponara, all H-4

"The Kinetics of the Solid-State Transformation of Dimolybdenum Carbide" by A. L. Bowman, and T. C. Wallace, both CMB-3, and G. P. Arnold, P-2

Presentation at 131st Meeting of the American Astronomical Society, New York City, Dec. 8-11:

"The Birth and Death of a Cosmic X-Ray Source" by J. P. Conner, W. D. Evans, and R. D. Belian, all P-4

Presentation at St. Michael's High School, Santa Fe, Dec. 10:

"Engineering and Drafting as Professions" by S. J. Bustamente, CMB-7

Presentations at the 15th Atomic Energy Commission Coated-Particle Fuels Working Group Meeting, Los Alamos, Dec. 10-11:

"Grooved Melt Wires for Temperature Measurement of Reactor Fuel" by P. G. Salgado, R. L. Rudman, both K-5, and B. J. Thamer, K-2

"Development of Particles Coated with Pyrolytic Carbon. Scale-Up of Coating Processes" by W. J. McCreary, H. R. Baxman, and R. J. Bard, all CMB-8

continued on next page

what's doing

PUBLIC SWIMMING: High School Pool—Mondays through Wednesdays, 7:30 to 9 p.m.; Saturdays and Sundays, 1 to 6 p.m.; Adult Swim Club, Sundays, 7 to 9 p.m.

NEWCOMERS CLUB: Feb. 25, White Elephant and Bake Sale, 7:30 p.m., Los Alamos National Bank. For information call Judy Ware, 2-5745.

LOS ALAMOS CONCERT ASSOCIATION: Feb. 17, 8:15 p.m., Civic Auditorium, Ruth Laredo, pianist. For information call Margaret Hagerman, 8-4389.

MESA PUBLIC LIBRARY: Feb. 1 through Feb. 21—"Very Pleased to Meet You," a Museum of New Mexico exhibit of self portraits by New Mexico artists; Feb. 24 through March 31—watercolor and oil paintings, Edith King; Feb. 3 through 24—Los Alamos Heart Association display.

RIO GRANDE RIVER RUNNERS: Meetings scheduled for noon, second Tuesday of each month at South Mesa Cafeteria. For information call Cecil Carnos, 672-3539.

SIERRA CLUB: Luncheon meeting at noon, first Tuesday of each month, South Mesa Cafeteria. For information call Brant Calkin, 455-2468, Santa Fe.

OUTDOOR ASSOCIATION: No charge, open to the public. Contact leader for information regarding specific hikes. February hikes require skis or snowshoes.

Feb. 1—Ski Hike—Jay Fries, 8-4537.

Feb. 15—Lake Peak—Ed Kmetko, 8-4911.

LOS ALAMOS SKI CLUB: Pajarito Mountain, tow runs from 9 a.m. to 4 p.m., week-ends and holidays. Rental equipment available. Ski School schedule—Group lessons, 6 to 12 students, 1½ hours, 10:30 a.m. and 1:30 p.m. Semi-private lessons, up to 3 students, 1 hour, 10:30 a.m., noon, and 1:30 p.m. Young children's class, kindergarten and up, 6 to 12 students, 12:15 p.m.

LOS ALAMOS SKATING ASSOCIATION: Monday—general skating—3 to 5 p.m. and 7 to 9:30 p.m.

Tuesday—"Ladies 'n' Tots"—9:30 to 11:30 a.m.; general skating—3 to 5 p.m. Figure Skating Club—6 to 7 p.m.; general skating—7 to 9:30 p.m.

Wednesday—general skating—3 to 5 p.m.; and 7 to 9:30 p.m. (Evening hours may be changed to accommodate a youth hockey program for 11 to 14-year olds.)

Thursday—"Ladies 'n' Tots"—9:30 to 11:30 a.m.; general skating—3 to 5 p.m.; Figure Skating Club—6:30 to 7:30 p.m.; adults only—7:30 to 10 p.m.

Friday—general skating—3 to 5 p.m., and 7 to 9:30 p.m.

Saturday—youth hockey program during morning; general skating—2 to 4:30 p.m.; 7 to 9:30 p.m.

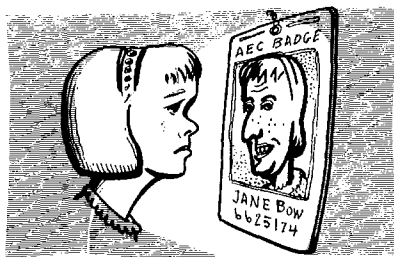
Sunday—reserved during morning for "pro" lessons, both group and individual; general skating—2 to 4:30 p.m.; Figure Skating Club—6:30 to 7:30 p.m.; adults only—7:30 to 10 p.m.

MOUNTAIN MIXERS SQUARE DANCE CLUB: For further information call Mrs. Alice Wynne, 2-5964.

Feb. 7—class graduation, potluck dinner, 6:30 p.m.; dance—8 to 11 p.m. Harry "Bones" Craig, caller. Canyon School.

Feb. 21—regular dance, Canyon School, 8 to 11 p.m., Ron Shaw, Albuquerque, caller.

20



years ago in los alamos

Culled from the Feb., 1950, files of the Los Alamos News by Robert Porton.

Pictures on Security Passes Bring Complaints

While the country at large speculates on such things as the H-bomb, the members of the fair sex around town are biting their cuticles over "those horrible pictures" the Security office is attaching to their passes. "They might have at least given us a chance to pretty up and they could have touched them up a bit," is the complaint of the women. Willie Ortiz of the Pass office might be able to satisfy the badge holders if he had Bachrach of New York or some other famous photographer on his staff. He might even decide to hire Peter Hurd to do sittings of the folks and make them look like they want to appear.

New Newspaper on the Hill

This month marks the beginning of another newspaper enterprise here in the Atomic City. Marcus Griffin, editor and publisher, stated "the Los Alamos News is being published with the intention of giving local residents a hometown paper, reflecting the attainments of the community and portraying the character of its people."

Fuchs Trial Underway

Dr. Klaus Fuchs, 38-year-old German-born scientist, charged by the British with giving A-bomb and H-bomb information to the Russians, goes on trial in London. According to the charges, one leak occurred in the U.S. in 1945, and the other in England in 1947. AEC officials disclosed that Fuchs worked in Los Alamos from Dec., 1944 to June, 1946.

Construction of Administration Building to Begin

Construction of a \$10 million to \$12 million laboratory and administration building, scheduled to be placed under contract this summer, is one of the first steps toward placing Los Alamos on a permanent basis, according to an announcement by the Atomic Energy Commission. The overall plan includes replacement of all Army-type temporary buildings over a five year period and a modern housing development for the Los Alamos area. The new laboratory building has been planned for almost three years. According to a spokesman, a three lane concrete bridge will also be constructed across Omega Canyon from the community to the new site, in order to separate the technical area from the business and residential sections.

"Phenomenology of UHTREX Fuel Elements During Reactor Startup Operations" by L. Weintraub, K-5

"Dimensional Stability of Graphite Elements Containing Coated Particles" by L. R. Cowler, and L. L. Lyon, both N-1

"Results of Pewee I Coated Particle Experiment" by L. L. Lyon, N-1

"Uranium Migration From UHTREX Fuel Elements" by P. G. Salgado, K-5

Presentations at National Fall Meeting of the American Geophysical Union, San Francisco, Calif., Dec. 15-18:

"Instabilities Associated with Heat Conduction in the Solar Wind and Their Consequences" by D. W. Forslund, T-12

"The Thermal Properties of Solar Wind Protons" by A. J. Hundhausen, T-12, J. R. Asbridge, and S. J. Bame, both P-4

"A Hydrodynamic Model of a Lightning Return Stroke" by T. R. Connor, J-10

"Non-Spherical Propagation of a Flare-Associated Interplanetary Blast Wave" by D. S. DeYoung, J-10 and A. J. Hundhausen, T-12

Presentation at Yale University, New Haven, Conn., Dec. 17:

"X-Ray and ESR Studies of the Bonding in Metal Cluster Compounds" by C. E. Strouse, CMF-4

Presentation at Health Physics Society Meeting, Rio Grande Chapter, Los Alamos, Dec. 18:

"Personnel Protection and Contamination Control During the Mine-Back at U6a-Russet" by R. W. Henderson, H-8

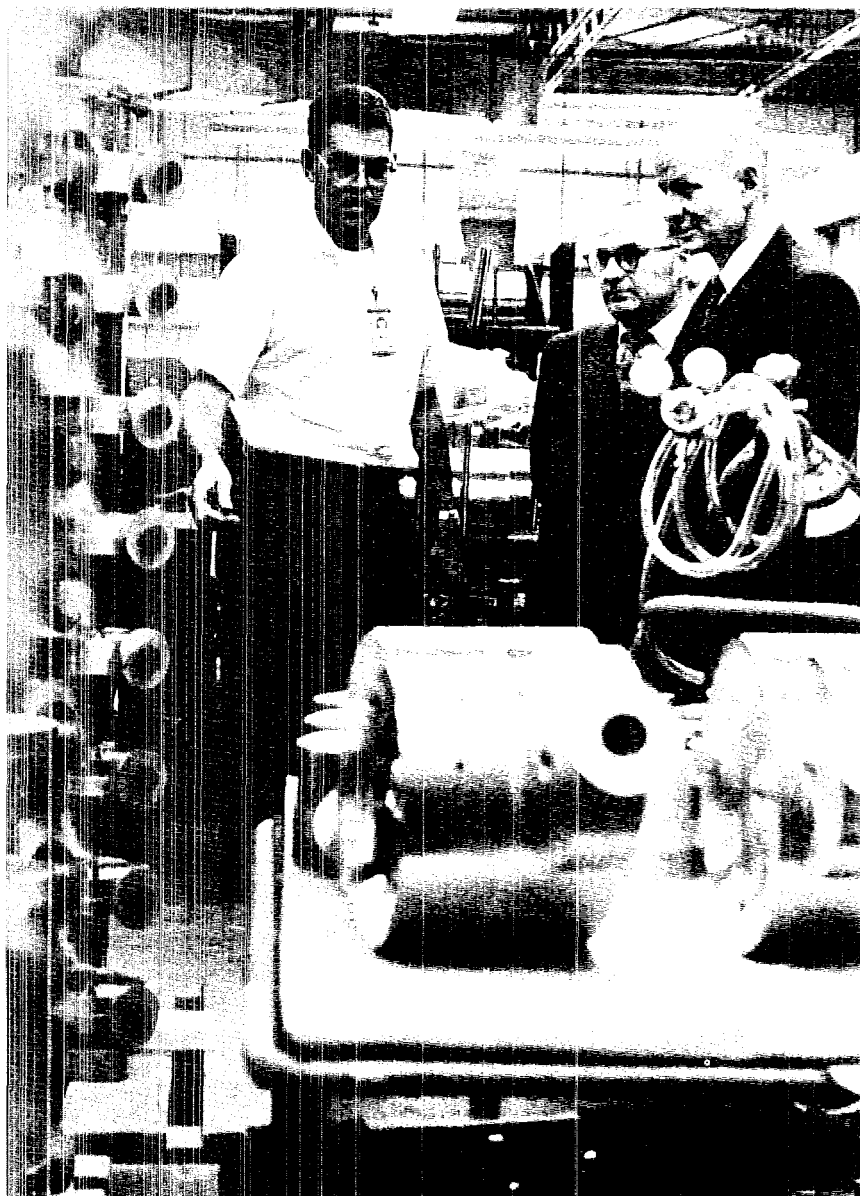
Presentations at American Physical Society 1969 Winter Meeting, Los Angeles, Calif., Dec. 29-31:

"Determination of Fission Barrier Characteristics from Analysis of (d, pf) and (t, pf) Results" by H. C. Britt, P-DOR (invited)

"Single-Particle Calculations of the Fission Barrier" by J. R. Nix, T-9

"Equation-of-State Measurement Techniques for the LASL Light-Gas Gun" by J. A. Morgan, GMX-6

Atomic Energy Commissioner Theos J. Thompson, right, and his assistant, Colonel Jack Rosen, center, listen to an explanation of accelerator fabrication and assembly procedures by Ed Knapp, MP-3 group leader, at the Los Alamos Meson Physics Facility Equipment Test Laboratory.



BACK COVER:

"Do you have a child missing," a New Mexico State Patrolman asked after stopping John Barcroft's car near Jemez Springs, about an hour's drive west of Los Alamos. "I don't know," replied Barcroft, an employee of the Atomic Energy Commission's Division of Classification in Germantown, Md. He did have a child missing. David, 12, had been left at LASL's Science Museum and Exhibit Hall. The boy, his folks, and other relatives had come to Los Alamos from Albuquerque in two cars. After touring the Museum and Exhibit Hall each driver had assumed David was in the other car.

